

## Abstract

5           The present invention discloses an indicator protein, and a method for making such a fusion protein, having a first binding moiety having a binding domain specific for a class of analytes that undergoes a reproducible allosteric change in conformation when said analytes are reversibly bound; a second moiety and third moiety that are covalently linked to either side of the first binding moiety such that the second and third moieties undergo a change in relative position  
10 when an analyte of interest molecule binds to the binding moiety; and the second and third moieties undergo a change in optical properties when their relative positions change and that change can be monitored remotely by optical means. The present invention also discloses a system and method for detecting glucose that uses such a fusion protein in a variety of formats including a subcutaneously and in a bioreactor.

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